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Research on Service Quality Engineering Management of Tourist Destination

—Taking the Yangtze Three Gorges for Example

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Abstract

Service quality management is a major engineering project in the study of tourist destination. Research on service quality engineering management of Tourist Destination is of very forward-looking and importance of realism and innovation. The Yangtze Three Gorges tourism collecting natural beauty, ancient sites and modern engineering miracle has been attracting visitors from all over the world. After the Three Gorges Project has become a must scenic spot for all cruise ships, the Three Gorges tourism is hotter. But more and more service quality issues are exposed. How to improve and guarantee service quality has become the key to promote Three Gorges tourism sustainable development. This paper used questionnaire empirical approach for travelers' opinions and gave a detailed analysis to how to promote the service quality of the Three Gorges tourism destination.

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Keywords: tourism destination; service quality; travelers' opinions

1. Study background

Tourism Service Quality (TSQ) refers to the perception of tourism services provided by tourist enterprise or tourism management department. It directly affects tourists' satisfaction and purchase preference, also is the key factor to distinguish between tourism service products and increasing the competitiveness. In 2009 the notice of "Tourism service quality improvement programs" was issued by the national tourism administration, which proposed a comprehensive upgrading of TSQ has been a strategic issue for tourism industry transformation and long-term development. The quality of tourism destination as an important part of TSQ systems has been entrusted the upgrading heavy responsibility in the first place. Because tourism destination as the space carrier of all tourism activities, the promotion of quality can solve local social and environmental issues to some extent, form harmonious tourism environment, and satisfy tourists, thus produce great attraction for tourists, and then produce good economic benefits. The promotion of tourism destination quality can coordinate interests between tourists, traveling enterprise and social long-term development, and eventually promote overall TSQ levels.

The Yangtze Three Gorges (YTG) including Qutang, Wu and Xiling Gorge, is from Baidicheng of Fengjie in Chongqing on the west to Nanjingshan of Yichang on the east. It has unique natural scenery and rich humanistic connotation. As the first of 40 outstanding national scenic areas and one of 16 traveling hotlines that national emphasis to support to international market, it has been the hot travel destination at home and abroad. The YTG

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tourism is hotter. But more and more service quality issues are exposed. How to improve and guarantee quality becomes the key to promote YTG tourism long-term sustainable development.

Foreign relevant researches with TSQ and customer satisfaction are more. Major areas have hotels, restaurants, national park, Theme Park, the Cruise Company, casinos, destination and so on (Marit C, Cunderser, et al, 1996)(Ekinci and Riley,1998). Australia scholars Madox R. N early began studying customer satisfaction of tourism destination. But difficulty was bigger, related researches were less (Bai Changhong, 2000). Domestic scholars' study about TSQ and satisfaction assessment was not much. The relevant research was always theoretical explanation and less empirical research, especially referring to the tourism destinations was least (Fu Quansheng, 2005). On specific research contents, whether foreign as well as domestic scholars have focused on the evaluation of the TSQ, and ignored further improving research on the basis of evaluation, so many research results have little actual guiding significance.

Based on this, the paper's purpose was to analyze the TSQ problems of YTG tourism destination, and perfect ways by double evaluation including visitors' perception and upgrading factors of the TSQ on the YTG tourism destination. Finally the paper provided the suggestions for tourism sustainable optimization development.

2. Research methods

2.1. Questionnaire design and samples' instructions

The investigation questionnaire has three parts, the first part was the evaluation of seven elements objective perception of TSQ of YTG, the second part was the scale of importance elements of YTG tourism promotion, and the 3rd part was the survey of demographic sociology features from interviewed tourists. The first two parts used Likert-type scale on a five-point scale. In the period from July 18 to 28, 2010, from Yichang to Chongqing by taking the sightseeing cruises, investigators took the visitors along the scenic spots and the cruise visitors as samples. 400 questionnaires were given out and 320 effective recalled with a usability rate of 80%. This paper used SPSS13.0 as tool of the questionnaire data's analysis. In the sample of interviewed tourists, the sex structure was 45.3% of women, and men accounted for 54.7%.

In age structure, most were the middle-aged tourists from 26 to 45 (accounted for 61.3%), followed by young visitors from 16 to 25 (accounted for 15.6%), and elderly visitors over the age of 60 (only 2.5%, because of the investigation season of hot summer with strong rains) were least. For education Structure, the survey respondents with college degree or above accounted for 76.2% of the total, to a certain extent, improved the credibility of this survey. For income structure, monthly income of 1000 ~ 2999 YUAN accounted for 53.4% was the highest, which was the China's largest family's actual income level. For visit number, the proportion of tourists that were the first visit was up to 82.8%.

2.2. Reliability analyses

In order to reflect the reliability of survey and ensure the scientific of data, the paper made a reliability analysis of Cronbach's Alpha, seven projects of objective perception evaluation questionnaire and 8 projects of metrics of lifting elements importance have been made respectively. The resulting value respectively was 0.890 and 0.888. Both were larger than 0.8. The result showed the paper with high confidence data which can be used for quantitative study.

3. The empirical study of tourists' evaluation on TSQ of tourist destination

3.1. Overall perception analysis of YTG tourism destination services

Generally speaking, in Likert-type scale on a five-point scale, the mean score between 1 and 2.4 expresses unsatisfied, between 2.5 and 3.4 general, between 3.5 and 5 satisfied (Tosun C, 2002). Based on a statistical analysis of the seven projects from objective perception evaluation questionnaire (as shown in table 1), evaluation of seven

service items form visitors didn't reach 3.5, of which highest scoring was traffic, minimum 3 items were catering, lodging and entertainment respectively, mainly because the YTG tourism is a whole tourism product, including travel agencies, cruise, shore facilities and reservoir attractions. Reservoir attractions is support, shore-based facilities is foundation, travel agency is bibcock, and cruise is subject (Wei Xiaolan, 2002).

Visitors stayed on the cruise for most of the time. Problems include: accommodation in primitive conditions, facilities few; Food's choice small, objects' value not equivalent; attitudes of servicemen bad; lack of characteristic project, etc.

Table 1 Analysis of overall perception evaluation of tourism destination service of YTG

evaluation factor	Choose number					Proportion (%)					mean	standard deviation
	5	4	3	2	1	5	4	3	2	1		
Traffic	43	129	95	40	13	13.4	40.3	29.7	12.5	4.1	3.47	1.007
Catering	21	57	122	88	32	6.6	17.8	38.1	27.5	10	2.83	1.045
Lodging	17	67	123	79	34	5.3	20.9	38.4	24.7	10.6	2.86	1.038
Scenic spots	21	103	139	43	14	6.6	32.2	43.4	13.4	4.4	3.23	0.918
Shopping	14	78	144	63	21	4.4	24.4	45	19.7	6.6	3.00	0.939
Entertainment	14	75	147	59	25	4.4	23.4	45.9	18.4	7.8	2.98	0.953
Whole	17	86	159	45	13	5.3	26.9	49.7	14.1	4.1	3.15	0.874

3.2. Perception analysis of different groups to YTG tourism services

Tourists of the opposite sex had the obvious difference in the evaluation of the TSQ. According to investigation, the evaluation of male visitors was satisfied with traffic, and all the other of evaluation were generally, relatively the most unsatisfactory was catering. All the evaluation of female tourists was generally, relatively the most unsatisfactory were food and lodging. Overall, the evaluation of the male visitors roughly equaled to women in scenic spot service and group shopping service, the satisfaction degree of the other projects were slightly higher than women. The female tourists who were sensitive with high quality requirements were harder to satisfy, and they paid more attention to the details of services and life, so the gap of the actual experience and expectations in YTG tourism was relatively large.

Tourist psychology experts think that age plays an important role on tourism perception; it affects tourists' comprehensive reflection of various attributes, different parts and their relationship of tourist destination (Liu Chun, 2000). Perception of tourists of different age groups was not the same. In the area of transportation, except for visitors aged 60 having high traffic requirements due to physical factor, evaluation of all ages were between 3.4 and 4.1, higher than other projects, the overall result was satisfactory. For food, the evaluations of all ages were general. And for scenic spot, those exceeded 3.1. For Shopping and entertainment, the evaluations of various ages were volatile.

Through the contrast, as shown in Table 2, it can draw: young tourists of 16 to 25 and 26 to 45 had the most tourist enthusiasm; accounted for the largest share, but the satisfaction for many projects of the YTG tourism destination services were lower than that of other ages. It was merited the attention of tourism department.

Table 2 Perception of different ages to Yangtze Three Gorges tourism services

projects	transport service	food service	Lodging service	scenic spot's service	Shopping service	Entertainment service	overall service
Under 16	4.05	3.37	3.11	3.74	3.58	3.32	3.37
16 to 25	3.5	2.94	3.06	3.36	3.2	3.06	3.24
26 to 45	3.41	2.74	2.78	3.14	2.88	2.89	3.12
46 to 59	3.47	2.85	2.81	3.21	3.11	3.06	3.09
Above 60	3.25	3	3.38	3.5	2.75	3.38	3.38

Normally the difference of education background determines that of social strata, affects tourists' different perception on tourism projects. At the same time the tourists of different degree levels by the learning ability, had obvious differences on the evaluation of tourism service quality. Survey results clearly showed the evaluation mean

of tourists of different degrees to all service projects from most to least exactly were: junior high school and the following, senior high school or technical secondary school, undergraduate, college and master's or above, generally reduced with the academic degree' rising. Therefore, the tourism product positioning and marketing of YTG should be aimed at psychological and behavioural characteristics of every visitor groups. The tourist operator should develop services or products of the different standards to improve the TSQ of low class, especially in accommodation and food; and strengthen development of the advanced knowledge groups. For the advanced knowledge market should not only be provided tourist services of high-grade, but also be paid attention to the ascension of TSQ.

Visit times are in great influence of the tourists' perception distance bias (Wang Lan, 2009), leading to produce differences in perceived evaluation of the TSQ. The results showed that visiting times have little influence on the perception of service quality of food and lodging, some problems have not been paid attention and timely perfect, have formed a vicious cycle. Other projects have been mild improvement. YTG tourism enterprises and managers should pay attention to the analysis of the perception TSQ, and strengthen post-sale service management.

3.3. The importance analysis of tourism destination service quality elements

Based on six elements of tourism "food, housing, transportation, traveling, shopping, entertainment," an evaluation index system of seven elements TSQ of tourism destination was constructed. The first part of the questionnaire designed an evaluation form of seven elements TSQ of tourism destination, using multiple regression analysis to study the importance of TSQ factors. That is, through exploring the influence of the TSQ dimensions on the overall service quality evaluation, the paper could understand the importance of TSQ factors.

Among them, y as dependent variable, said the overall rating for service quality of YTG tourism destination, X_i ($i=1, 2, 3, 4, 5, 6, 7$) as respectively for 7 independent variables, said the factor value of seven service elements including tourist traffic services, catering service, accommodation services, scenic service, shopping service, entertainment services, and overall service; b_0 as constant items; b_i ($i=1, 2, 3, 4, 5, 6, 7$) for regression coefficient of various factors, said the contribution amount to y . The result of regression was shown in table 3 and table 4, table 5.

Complex correlation coefficient R , decide coefficient R^2 , standard error of the adjusted decide coefficient and estimate in the return process, as shown in Table 4.

Table 4 Model summaries

mode	R	R^2	adjusted R^2	the estimated standard error
1	1.000(a)	1.000	1.000	0.056

a prediction variables: (constant), tour transport services, tourism catering service, tourism accommodation services, tourism scenic service, tourist shopping service, tourist entertainment service, tourism overall service

Here the negative correlation coefficient R was 1.000, showed linear relation of the dependent variable and argument was very strong; Judge Coefficient R^2 was 1.000, its value increased with the rise of the number of independent variables into regression equation and the size of the sample capacity. In order to eliminate expansive influence of the independent variables' number and independent, the adjusted decide coefficient here for 1.000 was introduced.

After multiple regression equation was certain, the regression equation was needed to determine, to determine whether establishment mathematical model was good fitted for the original data. Variance analysis method of multiple return equations was used. Testing hypothesis was that overall regression coefficients were 0 or not all for 0, using statistics F . F in Table 5 was 409058.70, significant probability for 0.0000 (< 0.05) rejected the null hypothesis, thinking of regression coefficients not for 0, namely the regression equation was meaningful.

Table 5 ANOVA table

Mode	squares	freedom	square squares	F	significant probabiliy
regression	8830.785	7	1261.541	409058.70	0.000(a)
residual error	0.962	312	0.003		
Summation.	8831.747	319			

a prediction variables: (constant), tour transport services, tourism catering service, tourism accommodation services, tourism scenic service, tourist shopping service, tourist entertainment service, tourism overall service
 b the dependent variable: overall quality evaluation

Table 6 showed the regression coefficients of independent variable, and the regression coefficient statistics t-test. The assuming was that respective variable regression coefficient was 0. Table 3 showed each T value, besides constants other significant probability was for 0.000 (<0.005), consistent with variance analysis, namely rejected the null hypothesis, thinking of regression coefficient was not for 0, the regression equation was meaningful.

Table 6 Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
1. (Constant)	0.014	0.014		1.031	0.303
Transport	1.005	0.004	0.192	256.098	0.000
Catering	0.998	0.005	0.198	213.510	0.000
Accommodation	0.995	0.005	0.196	207.024	0.000
Scenic	1.006	0.005	0.176	209.974	0.000
Shopping	0.994	0.005	0.177	207.720	0.000
Entertainment	0.996	0.005	0.180	205.697	0.000
Overall	1.001	0.006	0.166	159.017	0.000

a. Dependent Variable: overall quality evaluation

The regression equation was available by Table 6:

$$y = 0.014 + 1.005x_1 + 0.998x_2 + 0.995x_3 + 1.006x_4 + 0.994x_5 + 0.996x_6 + 1.001x_7$$

The regression coefficients of seven independent variables showed that, when tourists did overall TSQ of YTG, the importance of tourist service quality factors was not the same. The importance of the service quality of various factors that affected the overall evaluation from large to small: traveling scenic service, tour transport services, tourism overall service, tourism catering service, entertainment services, accommodation services and shopping services.

3.4. The factor analysis of tourist destination ascending elements

According to five requirements in "the tourism service quality improvement program (2009-2015)" to promote the quality of tourism destination: (1) improving the tourism infrastructure; (2) strengthening the tourism public services; (3) ascending tourism image; (4) improving tourism environment; (5) perfect product system. On this basis, combining with actual situation of YTG destination, the paper divided "improving tourism environment" into two elements of "improving tourism humanistic environment" and "optimization of ecosystem environment"; Because cruise ship is not only the main and most important tourism carrier in the YTG tourist activities, but also the important part of the YTG overall tourism products, plays a unique main role in the YTG tourism (Wang Lin, 2005). Therefore the paper increased a factor index of "unified cruise service standards", and constructed 8 elements evaluation index system for ascending of the tourist destination.

First, KMO and the Bartlett spherical test were made for observation variable values to identify that whether observation data and factors were fit for factor analysis.

Table 7 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.911
Bartlett's Test of Sphericity	Approx. Chi-Square	1156.159
	df	28
	Sig.	0.000

It could be seen from table 4, KMO value was 0.911, more than 0.8, saying that factor analysis was fit. According to the principle of accumulated Contributive rate over 85%, five common factors were selected; the result could be seen in table 8.

Table 8 Total variation explanation

element	Initial Eigen value		
	total	Variance percentage	Cumulative percentage
1	4.513	56.412	56.412
2	0.724	9.052	65.464
3	0.668	8.346	73.810
4	0.550	6.873	80.683
5	0.481	6.015	86.698

Because correlation coefficient of the original data was bigger, in order to be convenient for interpretation of main factors, the paper used orthogonal rotation to rotate factor loading matrix, the factor loading matrix through being rotated was shown in table 9.

Table 9 Rotated Component Matrixes (a)

	Principal component factor				
	1	2	3	4	5
Ascending tourism image brand	0.808	0.214	0.282	0.188	0.128
Improving tourism product system	0.807	0.272	0.170	0.230	0.150
Unifying cruise service standards	0.254	0.834	0.127	0.234	0.159
Improving tourist team quality	0.274	0.598	0.204	0.505	0.140
Improving the tourism infrastructure	0.235	0.114	0.888	0.231	0.134
Strengthening the public service	0.330	0.552	0.609	0.012	0.193
Improving tourism cultural environments	0.265	0.243	0.180	0.850	0.199
Optimization of ecosystem environment	0.175	0.184	0.167	0.188	0.933

For scientific reasons, according to the load coefficients, the paper selected the load coefficients those exceeded 0.5 and analyzed the variables' meaning. The first principal component was the most important influence component, including “promotion of tourism image brand and improving of the tourism product system”; the second principal components included “unifying service standards and improving tourist boat team quality”; The third principal components included “perfecting tourism infrastructure and strengthening the public services”; The fourth principal components included “improving tourism humanistic environment”; The fifth principal component was “optimization of ecosystem environment”.

4. Research conclusions

The previous chapter made an empirical analysis of service quality of YTG tourism, and did the quantitative evaluation about current TSQ of YTG destination from four aspects including: Overall perception analysis of YTG tourism destination services, perception analysis of different groups to YTG tourism services, the importance analysis of tourism destination service quality elements, and the factor analysis of tourist destination ascending elements. Based on the above problems discovered, this chapter would purposefully present a series of countermeasures to improve TSQ of YTG.

4.1. Promoting tourism overall image brand, and perfecting product system

From the tourist psychology, tourism subject had strong psychological tendency to the destination choice. Along with the expanding of Chinese tourism market, attention has become a scarce resource, tourists' choices of the tourism destinations tended to regional overall image information, not to disperse product information (Xue Ying, 2001).

Although at present government and industry of Hubei, Sichuan both have recognized the importance and urgency of the unified YTG tourism brand, but in practice because interest relations and the multiplicity and complexity of quality management, the situation of vying brand malignant competition and mutually denigrating

brand still exist.

Led by the national tourism administration, all circles should further reinforce and perfect coordinated management; confirm vivid and unified tourism destination image, including unified distinct logo, concise and personalized slogan; hold "China Yangtze Three Gorges international tourism festival" and so on, to enhance the linkage influence of the YTG tourism destination image. The network system of YTG tourism destination should be established and perfected in the way of inter-regional cooperation, including establishing settlement integration system, constructing unified information platform of Three Gorges area, etc. The regional tourism destination regions should form linkage cooperation and interactive qualitative inspect.

According to the market demand of different groups, diversified developing of tourism products should be pushed, promoting cultural connotation and technological content of YTG tourism product and upgrading of tourism products. According to the importance analysis of the quality elements of TSQ tourism destination, constantly optimizing the tourism product structure was necessary. Also increasing tourism projects and tourism products, preventing the missing of tourism elements (entertainment project), strengthening information feedback of service quality, and establishing a column in tourism service information platform were included.

4.2. Unifying cruise service standard and improving tourist team quality

The problems of cruise service quality became the important constraints for the TSQ tourism development. The standardization and unify of boat service standard system were established and perfected, making implementation of travel standards including tourism services, perfecting tourism function and safeguarding the rights and interests of tourists. In general two standards of internal and external were included.

The internal standard referred to service standards and quality standards that were complied with cruise service rules, and suitable for tourist demand characteristic. External standard, referred to comprehensive psychological satisfaction appraisal of meeting its tourism activities demand degree including cruise line design, facilities and entertainment environment and cruise reception services and so on.

Preparing cruise service quality manual, exploring to establish cruise products instruction system, those could provide basis for developers, operators and provider to improve cruise service quality, so boat tourism operators could be better guided to provide TSQ. According to the standard operation strictly, we could reduce service error, avoid service negligence, improve visitors satisfaction, make cruise display function of truly meeting tourists' demand of sightseeing and leisure vacation to gain some experience, etc.

It suggested that YTG tourism practitioners should be strengthened training, professional ethics education, and carried out strict posts system. Using measures of education, administrative, economic, and legal to regulate the behaviour of personnel engaged in tourism, establishing training system, the ascent of the whole tourist team quality was necessary.

The mechanism of compensation, safeguard and incentive should be established and improved, safeguarding the lawful rights and interests of personnel engaged in tourism, strengthening the supervision and administration, making publicity system for service quality of employees in the appointed region, etc.

4.3. Improving the tourism infrastructure, and strengthening the public service

Following the principle of environmental priority, we should increase the tourism infrastructure investment. Accessibility of transportation network should be enhanced. Guiding and promoting tourism service reception facilities, improving the tourism service reception function, food and accommodation should have key ascending, additional entertainment projects were necessary. In the scenic spots and tourism pier, security and guarding spots should be set up. The additional river rescue safety facilities were necessary. Tourism sanitation, medical and environmental protection facilities should be promoted.

Improving the tourism public information and establishing unified information platform of YTG tourism for the overall image propaganda and tourism information sharing. YTG tourism consulting system should be made linkage exploitation, providing convenient, quick and comprehensive consulting services. To further perfect tourism public service system of complaints, emergency handling and rescue, and travel insurance, we should execute unified supervision, strengthen regional integration ability, and improve the level of public service of the YTG tourism destination.

4.4. *Optimizing tourism environment and promoting sustainable development of tourism*

Improving YTG tourism humane environment, reasonable utilization of tourism resources was suggested, to ensure the environmental and life quality of the tourism destinations. Fully promoting cultural exchanges, and avoiding negative influence of spiritual and cultural life to destination. Constructing tourist destination with safety and orderly public order, Tourism operators should achieve honest trading, and eliminate coxcombical fraud. We should strengthen construction of tourism credit system and integrity travel network, guide tourism enterprises to standardize management, make good credit management environment. Language service environment should be optimized, using appropriate language in tourism activities, and preventing tourist noise. The destination residents' participation should be strengthened, encouraging exquisite civilized behaviour and preventing tourism abuse. YTG itself is an area of weak ecological environment, environmental protection of YTG reservoir is the important basis of regional economic development. In the course of travel, we should launch propaganda education; improving visitors own environmental protection consciousness, guiding tourists note environmental hygiene and eliminate tourism pollution. Establishing and perfecting the sewage and garbage disposal system, reducing pollutants especially the cruise emissions, steadily rising tour environment quality. Planning for YTG tourism destination to eliminate overload development, and keep sustainable development space was necessary.

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References

1. MaritC, Cunderser, et al HotelCuest Satisfaction among Business Traders [J]. Connell Hotel and Restaurant Administration Quality 1996.
- 2.Ekinci, Y, &Riley M. A critique of the issues and theoretical assumptions in service quality measurement in the lodging industry time to move the goal-post, fntemational Journal of Hospitality Management 1998,17(4): 349-362.
3. Bai Changhong. Service enterprise's customer loyalty and their determinants [J] Naikai management comments, 2002 (6): 64-69].
4. Fu Quansheng. Theory study of tourist satisfaction of tourism destination [J].Geography and geographic information science, 2005 (5): 90-93.
5. Tosun C. Host perceptions of impacts A canpamtive tourism study [J].Annals of tourism Research 2002, 29(1):231 — 253.
6. Wei Xiaolan. Industry development theory [M].China Travel &Tourism Press, Beijing, China, 2002.219-220.
7. Liu Chun. Tourist psychology [M]. Tianjin: Nankai university press, 2000.
8. Wang Lan, Cao Jing, Zhang Jie, Zhang Hong lei. Tourists' perception study of distance deviation in Jiuzhaigou[J]. Journal of Beijing second International Studies University. 2009,31(5).
9. Wang Lin. Cruise service quality empirical research on the Yangtze Three Gorges [J]. Journal of tourism, 2005 (03): 69.
10. Xue Ying. Understanding of several basic problems on regional tourism cooperation[J]. Journal of Guilin College of Tourism, 2001, (2)